

03050201-080

(Wando River)

General Description

Watershed 03050201-080 extends through Berkeley and Charleston Counties and consists primarily of the **Wando River** and its tributaries. The watershed occupies 73,061 acres of the Coastal Zone region of South Carolina. The predominant soil types consist of an association of the Bohicket-Chipley-Yonges-Kiawah-Chisolm series. The erodibility of the soil (K) averages 0.12; the slope of the terrain averages 1%, with a range of 0-6%. Land use/land cover in the watershed includes: 53.0% forested land, 16.9% forested wetland, 8.8% nonforested wetland, 11.8% water, 5.7% urban land, 2.5% scrub/shrub land, 1.2% agricultural land, and 0.1% barren land.

The Wando River accepts drainage from the Iron Swamp (Mayrants Reserve), Alston Creek, Darrell Creek, Deep Creek, Toomer Creek, and Wagner Creek before receiving Guerin Creek drainage (Lachicotte Creek, Old House Creek, Fogarty Creek) near Cat Island. The Guerin Creek drainage flows through the Francis Marion National Forest. Johnfield Creek enters the river downstream followed by Horlbeck Creek (Boone Hall Creek), Fosters Creek, Beresfords Creek (Martin Creek, Sanders Creek, Hopewell Creek), Ralston Creek, Rathall Creek and Bermuda Creek. Beresford Creek is connected to Clouter Creek in watershed 03050201-050. From the headwaters to a point 2.5 miles north of its confluence with the Cooper River, the Wando River is Classified SFH; downstream of this point to its confluence with the Cooper River, the Wando River is classified SA. Hobcaw Creek (Lake Woodlawn) and Molasses Creek enter the Wando River at the base of the watershed (SFH) near the Town of Mount Pleasant. The Wando River then drains into the Cooper River which flows into the Charleston Harbor. There are a total of 0.6 stream miles and 26.0 square miles of estuarine area in this watershed.

Water Quality

<u>Station #</u>	<u>Type</u>	<u>Class</u>	<u>Description</u>
MD-115	P	SFH	WANDO RIVER AT S.C. 41
MD-198	P	SFH/SA	WANDO RIVER BETWEEN RATHALL & HOBCAW CKS

Wando River - There are two SCDHEC ambient monitoring network sites along the Wando River and recreational uses are fully supported at both sites. At the upstream site (**MD-115**), aquatic life uses are partially supported due to dissolved oxygen excursions, compounded by a significant decreasing trend in dissolved oxygen concentrations and a significant increasing trend in turbidity. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentrations suggest improving conditions for these parameters. A high concentration of copper and zinc were measured in the 1997 sediment sample, together with the detection of lindane. The copper concentration exceeded the Effects Range Low (ERL) concentration, but was less than the Effects Range Median (ERM) concentration. The lindane concentration exceeded the ERL concentrations and the ERM concentration.

Further downstream at **MD-198**, aquatic life uses are fully supported; however there is a significant decreasing trend in dissolved oxygen concentrations and a significant increasing trend in turbidity. There is also a significant decreasing trend in pH. Significant decreasing trend in total nitrogen concentrations suggests improving conditions for this parameter.

NPDES Program

Active NPDES Facilities

<i>RECEIVING STREAM FACILITY NAME PERMITTED FLOW @ PIPE (MGD) COMMENT</i>	<i>NPDES# TYPE LIMITATION</i>
WANDO RIVER DETYENS SHIPYARDS PIPE #: 001 FLOW: 0.025	SC0033022 MINOR INDUSTRIAL EFFLUENT
MOLASSES CREEK COOPER HALL RETIREMENT PIPE #: 001 FLOW: M/R (Mapped in 03050202-070)	SCG250160 MINOR INDUSTRIAL EFFLUENT

Nonpoint Source Management Program

Mining Activities

<i>MINING COMPANY MINE NAME</i>	<i>PERMIT # MINERAL</i>
ISLAND CONSTRUCTION CO., INC. R&L PIT	0568-19 SAND/CLAY
C & G INVESTMENTS LUCKER MINE	0735-19 SAND
SHELLMORE FARMS (LJ INC.) SHELLMORE FARMS MINE	0641-19 SAND/CLAY

Land Disposal Activities

Landfill Facilities

<i>SOLID WASTE LANDFILL NAME FACILITY TYPE</i>	<i>PERMIT # STATUS</i>
MT PLEASANT TRANSFER STATION MUNICIPAL	101002-6001 -----

Growth Potential

There is a high potential for growth projected for this watershed. Some of the major development areas include: Dunes West, Liberty, Rivertowne, Brickyard, Long Point, Belle Hall, and Daniel Island. Water and sewer services are available in all potential growth areas.

Watershed Protection and Restoration

Special Models

The Charleston Harbor Models

Two different models have been developed for wasteload allocations purposes for the Charleston Harbor system. The initial model was developed through the Charleston Harbor Project (CHP) and the second model was developed by Applied Technologies and Management (ATM) for the Cooper River Water Users Association. Working in conjunction with the Department, the University of South Carolina, Clemson University, and the United States Geological Survey (USGS), CHP's goal was to develop a tool for the Department's use in point source wasteload allocation and Total Maximum Daily Load (TMDL) determination. The modeled domain, for both models, encompasses the Cooper River and its major tributaries from Pinopolis Dam to its confluence with the Wando River, the Wando River from its headwaters to the confluence with the Cooper River, and the Ashley River from Bacon Bridge downstream to the U.S. Hwy. 17 Bridge. Hydrodynamics, for CHP's effort, are modeled using the one-dimensional BRANCH model while water quality is modeled using the one-dimensional Branched Lagrangian Transport Model. Modeling data were collected in May and August of 1993 by the Department and the USGS. Hydrodynamics, for ATM's effort, are modeled using the two-dimensional boundary fitted circulation model. Water quality is modeled using the two dimensional WQMAP which uses EPA WASP5 eutrophication model kinetics. Modeling data were collected in September 1996 by ATM and August of 1993 by the Department and the USGS. The Department plans on using the two models in concert to determine TMDL and point source wasteload allocations for the Charleston Harbor system.